AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (Currently Amended) A method for evaluating a gate insulation film characteristic for use in a semiconductor device, the semiconductor device including a semiconductor substrate having a source region, a drain region, a channel region provided between the source region and the drain region and an element separate structure surrounding the source region, the drain region and the channel region, the gate insulation film being provided so as to cover the semiconductor substrate, and a gate electrode provided so as to face the channel region via the gate insulation film, and wherein the gate insulation film is ~~A semiconductor device comprising an insulating film, the insulating film being~~ formed of an insulative inorganic material as a main material, the insulative inorganic material containing silicon and oxygen, ~~and~~ the gate ~~insulation~~ insulating film further containing hydrogen atoms, the method comprising:

preparing the semiconductor substrate;

forming the element separate structure so as to compartmentalize one surface of the semiconductor substrate into a plurality of regions;

forming the gate insulation film so as to cover the semiconductor substrate and the element separate structure;

subjecting the gate insulation film to which an electric field has never been applied to a Multi-Reflection Attenuated Total Reflection Method as Fourier Transform

Infrared Spectroscopy at room temperature after formation of the gate insulation film on the semiconductor substrate and the element separate structure; and

evaluating the gate insulation film characteristic based on measurement results of the gate insulation film by the Multi-Reflection Attenuated Total Reflection Method, the characteristic being evaluated as to whether the following conditions (1) and (2) are satisfied; (1) ~~wherein~~ at least a part of the absorbance of infrared radiation ~~of which~~ with a wave number ~~is~~ in the range of 830 to 900 cm^{-1} ~~is less than both the absorbance of infrared radiation at the wave number of 830 cm^{-1} and the absorbance of infrared radiation at the wave number of 900 cm^{-1} when the insulating film to which an electric field has never been applied is measured by means of Fourier Transform Infrared Spectroscopy at room temperature~~, and

~~wherein,~~ (2) in the case where the absolute value of the difference between the absorbance of infrared radiation at ~~the~~ a wave number of 830 cm^{-1} and the absorbance of infrared radiation at ~~the~~ a wave number of 770 cm^{-1} is defined as A and the absolute value of the difference between the absorbance of infrared radiation at ~~the~~ a wave number of 900 cm^{-1} and the absorbance of infrared radiation at the wave number ~~of~~ 990 cm^{-1} is defined as B, then A and B satisfy the relation: A/B is 1.8 or more.

2. (Currently Amended) The method ~~The semiconductor device~~ as claimed in claim 1, wherein the insulative inorganic material further includes at least one of nitrogen, hafnium, zirconium, and aluminum in addition to silicon and oxygen.

3. (Currently Amended) The method ~~The semiconductor device~~ as claimed in claim 1, wherein each hydrogen atom in at least a part of the hydrogen atoms is replaced by a deuterium atom.

4. (Currently Amended) The method ~~The semiconductor device~~ as claimed in claim 1, wherein ~~the~~ an average thickness of the gate ~~insulation~~ insulating film is 10 nm or less.

5. (Canceled)

6. (Currently Amended) The method ~~The semiconductor device~~ as claimed in ~~claim 5~~ claim 1, wherein the semiconductor device is adapted to be used under the condition that a gate voltage is applied to the gate electrode so that ~~the~~ an electric field intensity in the gate ~~insulation~~ insulating film is 10 MV/cm or less.

7. (Currently Amended) The method ~~The semiconductor device~~ as claimed in ~~claim 5~~claim 6, wherein a leakage current passing through the gate ~~insulating~~ insulation film in the thickness direction thereof that is measured in a state that the gate voltage is applied to the gate electrode so that the electric field intensity in the gate ~~insulating~~ insulation film is 5 MV/cm or less is 9×10^{-9} A/cm^2 or less.

8. (Currently Amended) The method ~~The semiconductor device~~ as claimed in ~~claim 5~~ claim 1, wherein the total amount of electrical charges passing through the gate

~~insulating~~ insulation film in the thickness direction thereof until a soft breakdown occurs in the gate ~~insulating~~ insulation film is 40 C/cm^2 or more.

9. (Currently Amended) The method ~~The semiconductor device~~ as claimed in ~~claim 5~~ claim 1, wherein the total amount of electrical charges passing through the gate ~~insulating~~ insulation film in the thickness direction thereof until a hard breakdown occurs in the gate ~~insulating~~ insulation film is 100 C/cm^2 or more.

10. (Canceled)

11. (Canceled)

12. (Canceled)